respectfully requested.

Claim 1 has been amended for clarity, claim 13 corresponds to claim 1 with the further limitation of the wavelength ranges based on the specification at the bottom of page 1.

Restriction Requirement

Applicants note that the Examiner has taken the position that a device for recording and a device for reproducing are not per se the same invention.

Applicants respectfully request reconsideration in that the core concept of present invention is to separate the radiation spectrum emitted from the projection lamp (in the case of projection) or from the object (in the case of recording) into a first partial light bundle (B1, G1, R1) and a second partial light bundle (B2, G2, R2) complimentary to the first part light bundle (B1, G1, R1). In the projector, a beam integrator first produces the two separate light bundles, then reunites the first partial light bundle (B1, G1, R1) with the second partial light bundle (B2, G2, R2). The recorder likewise splits then records the first partial light bundle comprised of three first narrow transmission ranges (B1, G1, R1) and the second partial light bundle comprised of three second narrow transmission ranges (B2, G2, R2) complimentary to the first transmission ranges.

Applicant also advises the Examiner that there was no lack of unity objection in the corresponding European patent application.

Applicant also notes that the Examiner issued an election

of species requirement identical in scope to the restriction requirement. Applicant does not understand this and presumes either the restriction requirement or the election of species requirement to be in error.

Accordingly, Applicants (1) request reconsideration of the restriction requirement and ask the Examiner to explain reasons for maintaining the restriction requirement, and (2) ask the Examiner if he intended this to be a Restriction Requirement or Election of Species Requirement, the original Office Action not being clear.

Office Action

Turning now to the Office Action in detail, the paragraphing of the Examiner is adopted.

Paragraph 1 - Claim Rejections - 35 USC §102

Claims 1 and 6-8 are rejected under 35 U.S.C. §102(b) as being anticipated by Lee (U.S. Patent 5,121,983).

According to the Examiner, Fig. 3 of Lee shows a device for projecting a color image on a screen that includes a projection lamp, a beam splitter that separates the radiation spectrum emitted from the projection lamp into a first partial light bundle, directed towards the mirror G-1, and a second partial light bundle, directed toward the mirror G-2, two image modulators for shaping the light bundles into images, a beam integrator for reuniting the first partial light bundle with the second partial light bundle, and a lens system for outputting

the resulting color image. The beam splitter is sown with a splitter mirror, and the beam integrator is shown with an integrating mirror.

Applicants respectfully traverse.

The Examiner omits to mention that in Lee the first and second partial light bundles are not for ***complementary*** colors. Rather, they are for the ***same*** colors (same frequency range), but with separate ***polarized images*** differing only in that the lightwaves are perpendicular to each other. "Thereafter, the left and right video signals are projected on a screen M by the two polarizing beams whose polarizing directions are perpendicular to each other so that the viewers can feel the **stereoscopic** image by using a **polarizing optical**." (col. 4, lines 48-52).

The present invention requires no special optics (glasses) to view, and is quite different in object and form from the device taught in Lee. It is necessary to understand that the present invention addresses the problem in that typically color image recording and reproduction is based on three "primary" colors (B, G, R) which can be additively mixed to form other colors which, when plotted on an X,Y chromaticity diagram, are represented by the area covered by a BGR triangle, with outside the triangle being **omitted areas of natural colors.** Thus, true colors lying outside the triangle are not reproducible.

The present invention addresses the problem of reproducing colors lying (a) inside the X,Y chromaticity diagram as well as (b) ***outside the X,Y chromaticity diagram.***

The present invention accomplishes this by dividing light of an image into a first partial light bundle (B1, G1, R1) and a second light bundle (B2, G2, R2) ***complementary*** to the first light bundle. The device for recording and the device for projecting both use the same or complementary optical components (e.g., beam splitter and beam integrator) and employ the same principle of beam splitting in order to ***enhance color reproducibility***.

Lee only uses three colors (B, R, G) which can be plotted on a single chromaticity diagram, thus has no relation to the problem/solution of recording and reproducing colors outside the X,Y chromaticity diagram triangle using three colors and three complementary colors.

Consider - it is possible with the present invention to use the two sets of colors to make a stereoscopic image, but it is not possible using the polarized images of Lee to produce colors outside the RBG triangle according to the present invention.

As just mentioned, the present invention could in one aspect be used to make a stereoscopic image, which can be perceived as three dimensional by a viewer provided with glasses of which one lens is transmissive for the first set of colors and the second lens transmits the second set of colors.

Another unique aspect of the invention is that a single incandescent (thermal) light source can be used to provide the first set of three colors and the three complementary colors. Since the first set of colors and the second set of (complementary) colors are perceived by the eyes and integrated

to make a single visual image, the end product is different from that of Lee, since in the present invention the stereoscopic image is not only three dimensional, it is ***color enhanced.***

Applicants further submit that enhanced color recording and enhance color reproduction/projection are two aspects of the same invention, thus respectfully request that all claims be considered.

The claims have been amended for clarity.

In view of the above, withdrawal of the rejection is respectfully requested.

Paragraph 2 - Claim Rejections - 35 USC §103

Claims 2, 3 and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lee as applied to claims 1 and 6-8 above, and further in view of Coteus, et al. (U.S. Patent 5,537,476).

Very basically, Coteus uses a combination of RBG and phase shifted R'B'G' to generate a first "sense" image and a second "***masking***" image, these two images being projected together, so that the sense image can not be viewed without use of a filter for removing the ***masking*** image. By use of glasses with a filter characteristic for the sense image, this is revealed while the masking image is removed.

Thus, Corteus does not improve or enhance color fidelity or reproduction according to the present invention, Corteus merely masks and unmasks information, as already apparent from the title and abstract.

Even if the person of ordinary skill in the art were given the specific task of providing a color-enhanced recording and reproducing technology, such person would not find suggestion for the present solution in the combined teachings of Lee and Corteus. Corteus would be immediately discarded as not being relevant to the present invention.

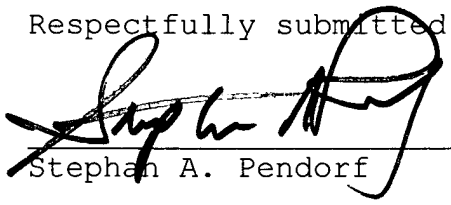
Addressing not the position of the Examiner in greater detail, according to the Examiner in Lee the beam splitter divides light based on polarization and not using small, non-overlapping sections of red, green and blue light. Coteus discloses a stereoscopic projector in which light from two separate image sources contain different non-overlapping sections of red, green and blue light are combined together and are displayed via a special pair of glasses containing a pair of filters so that light from one of the sources reaches the left eye and the light from the other source reaches the right eye.

Applicants respectfully point out that Coteus does not expressly address full color images. Coteus concerns use of "primary" colors to provide an image, and "secondary" colors to mask the image (such as text - e.g., subtitles). A viewer can use a filter mask to filter out the masking secondary colors, and thus becomes enabled to view the primary image, e.g., read the text which is otherwise masked. In Coteus, the preferred image becomes visible when the secondary (shifted) colors are filtered out. **This has noting to do with the present invention.**

See in particular col. 3, line 30: "a viewer who does not

have the filter means with a wavelength absorption band matching the secondary image will see a highly distorted image. … In addition, the masking of the primary image is switchable so that if the security is not desired the secondary image can be switched off to allow anyone to see the undistorted primary image." Thus, when the secondary colors are not filtered out, the image would appear to be a simple RBG image.

Respectfully submitted,



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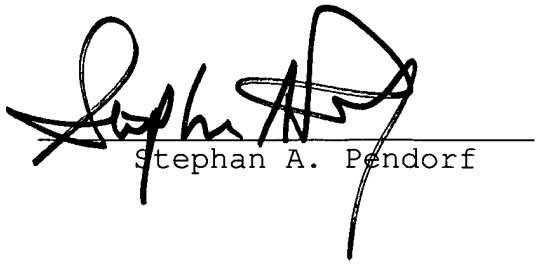
Dated: January 21, 2003

CERTIFICATE OF MAILING AND AUTHORIZATION TO CHARGE

I hereby certify that a copy of the foregoing AMENDMENT A for U.S. Application No. 09/744,634 filed January 26, 2001, was deposited in first class U.S. mail, postage prepaid, addressed: Commissioner of Patents and Trademarks, Washington, D.C. 20231, on January 21, 2003.

The Commissioner is hereby authorized to charge any additional fees which may be required at any time during the prosecution of this application without specific authorization, or credit any overpayment, to Deposit Account No. 16-0877.



Stephan A. Pendorf

VERSION WITH MARKINGS TO SHOW CHANGES MADE HEREBY ATTACHED

The Examiner is requested to accept the marked-up version as it is based on the previous version, which when modified as below, produces the clean version submitted with the current amendment.

IN THE SPECIFICATION: (Marked Version)

Please amend paragraphs 00034, 00045 and 00061 to read as follows:

--[00034] Fig. 8 measurement protocol, obtained with a substance sensor produced using the conventional thick layer technique, of which the finger breadth s = 100µm;--

--[00045] Steps 3 and 4 are only necessary when the gas sensor requires a layer for electrical insulation or [sheilding] shielding. This serves to shield the sensor measuring process against interferences on the basis of the heat process at the heat and temperature measurement resistor layer **6**.--

--[00061] Sensor B (Fig. 8) exhibited a finger breadth of s=100µm. Sensor B was completely produced using the conventional thick layer technique.--

IN THE CLAIMS:

Please amend claim 1 and add new claim 13 as follows:

1. (Amended) A device for projecting a color enhanced color image upon a screen (S) including

a projection lamp (PL) for emission of a radiation spectrum,

a beam splitter (ST2) for separation of the radiation spectrum emitted from the projection lamp into a first partial light bundle (B1, G1, R1) and a second partial light bundle (B2, G2, R2) complimentary to the first part light bundle (B1, G1, R1),

two color image modulators (FM1, FM2) for reproducing images in the respective partial light bundles (B1, G1, R1, B2, G2, R2),

a beam integrator (SV) [is] provided subsequent to the color image modulators (FM1, FM2) for reuniting the first partial light bundle (B1, G1, R1) with the second partial light bundle (B2, G2, R2), and a lens system (Ob) for output of the therefrom resulting color image,

wherein said first partial light bundle (B1, G1, R1) is defined by a first RBG triangle of an X,Y chromaticity diagram, and said second partial light bundle (B2, G2, R2) is defined by a second RBG triangle of an X,Y chromaticity diagram including colors outside said first X,Y chromaticity diagram, such that the combination of said first and second partial light bundles produces a color image enhanced in comparison to that produced by one partial light bundle alone.

--13. A device for projecting a color enhanced color image upon a screen (S) including

a projection lamp (PL) for emission of a radiation spectrum,

a beam splitter (ST2) for separation of the radiation spectrum emitted from the projection lamp into a first partial light bundle (B1, G1, R1) and a second partial light bundle (B2, G2, R2) complimentary to the first part light bundle (B1, G1, R1),

two color image modulators (FM1, FM2) for reproducing images in the respective partial light bundles (B1, G1, R1, B2, G2, R2),

a beam integrator (SV) [is] provided subsequent to the color image modulators (FM1, FM2) for reuniting the first partial light bundle (B1, G1, R1) with the second partial light bundle (B2, G2, R2), and a lens system (Ob) for output of the therefrom resulting color image,

wherein said first partial light bundle (B1, G1, R1) is defined by a first RBG triangle of an X,Y chromaticity diagram, and said second partial light bundle (B2, G2, R2) is defined by a second RBG triangle of an X,Y chromaticity diagram including colors outside said first X,Y chromaticity diagram, such that the combination of said first and second partial light bundles produces a color image enhanced in comparison to that produced by one partial light bundle alone, and

wherein said partial light bundles lie within 430 - 480 nm for spectral region blue, 500 - 550 nm for spectral region green, and 600 - 650 nm for spectral region red.--